

Coal Combustion Residuals

Draft Rule

May 12, 2016

391-3-4-.10 Coal Combustion Residuals

(1) Applicability.

(a) This Rule applies to the following:

1. Owners and operators of new and existing landfills and surface impoundments, including any lateral expansions of such units that dispose or otherwise engage in solid waste management of CCR generated from the combustion of coal at electric utilities and independent power producers. Unless otherwise provided in this Rule, these requirements also apply to disposal units located off-site of the electric utility or independent power producer.
2. CCR landfills that have ceased receiving CCR prior to October 19, 2015.
3. Inactive CCR surface impoundments at active electric utilities or independent power producers, regardless of the fuel currently used at the facility to produce electricity.
4. CCR surface impoundments at electric utilities or independent power producers that have ceased producing electricity prior to October 19, 2015.
5. Any practice that does not meet the definition of a beneficial use of CCR.

(b) This Rule does not apply to the following:

1. Wastes, including fly ash, bottom ash, boiler slag, and flue gas desulfurization materials generated at facilities that are not part of an electric utility or independent power producer, such as manufacturing facilities, universities, and hospitals.
2. Fly ash, bottom ash, boiler slag, and flue gas desulfurization materials, generated primarily from the combustion of fuels (including other fossil fuels) other than coal, for the purpose of generating electricity unless the fuel burned consists of more than fifty percent (50%) coal on a total heat input or mass input basis, whichever results in the greater mass feed rate of coal.
3. CCR placement at active or abandoned underground or surface coal mines.
4. Municipal solid waste landfills that receive CCR.

- (c) Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments 40 CFR 257.60 through 257.107, effective on October 19, 2015 are hereby incorporated and adopted by reference with the following exception:

1. 257.104 Paragraph (a)(3) is excluded.

- (d) Any reference to 40 C.F.R. Parts in any provisions adopted by reference shall be construed to refer to the provisions contained in the following sections of these Rules:

<u>Federal Regulation Reference</u>	<u>Georgia Rule Reference</u>
<u>40 C.F.R. Part 257.53</u>	<u>391-3-4-.10(2)</u>
<u>40 C.F.R. Parts 257.60 – 257.64</u>	<u>391-3-4-.10(3)</u>
<u>40 C.F.R. Parts 257.70 – 257.74</u>	<u>391-3-4-.10(4)</u>
<u>40 C.F.R. Parts 257.80 – 257.84</u>	<u>391-3-4-.10(5)</u>
<u>40 C.F.R. Parts 257.90 – 257.98</u>	<u>391-3-4-.10(6)</u>
<u>40 C.F.R. Parts 257.100 – 257.104</u>	<u>391-3-4-.10(7)</u>
<u>40 C.F.R. Parts 257.105 - 107</u>	<u>391-3-4-.10(8)</u>

(2) Definitions.

- (a) Definitions in 40 CFR 257.53 are incorporated by reference into this section and are applicable to CCR units with the following additions and revision:

1. “Dewatered Surface Impoundment” means a CCR surface impoundment that no longer receives CCR on or after October 19, 2015 and does not contain liquids on or after October 19, 2015.
2. “NPDES-CCR Surface Impoundment” means a CCR surface impoundment that no longer receives CCR on or after October 19, 2015 which still contains both CCR and liquids and is located at an electric utility or independent power producer that has ceased producing electricity prior to October 19, 2015.
3. “Inactive CCR Landfill” means a CCR landfill that no longer receives CCR and other wastes on or after October 19, 2015.
4. The following text shall be substituted for the fourth condition in the definition of Beneficial use of CCR “(4) For unencapsulated use of CCR, the user must demonstrate to the Division and provide documentation to the Division that environmental releases to groundwater, surface water, soil, and air are comparable to or lower than those from analogous products made without CCR, or that environmental releases to groundwater, surface water, soil, and air will be at or below relevant regulatory and health-based benchmarks for human and ecological receptors during use.”

(3) Location Restrictions.

- (a) New CCR landfills, existing and new CCR surface impoundments, and all lateral expansions of CCR units must meet the location restrictions in 40 CFR 257.60, 40 CFR 257.61, 40 CFR 257.62, and 40 CFR 257.63.

- (b) Existing or new CCR landfills, existing or new CCR surface impoundments, or lateral expansions of a CCR unit must meet the location restrictions in 40 CFR 257.64.
- (c) For new and lateral expansions of CCR units, the hydrogeological evaluation for a specific site must be performed by a qualified groundwater scientist.
- (d) For new and lateral expansions of CCR units, when the geological and hydrological data so indicate, the Division may specify greater separation distances to protect groundwater.
- (e) Buffers: New CCR units and lateral expansions of CCR units must provide a 200-foot undisturbed buffer between the waste disposal boundary and the property line and a minimum 500-foot buffer between the waste disposal boundary and any occupied dwelling and the dwelling's operational private, domestic water supply well in existence on the date of the permit application. The 500-foot buffer may be reduced if the current owner of the dwelling provides a written waiver consenting to the waste disposal boundary being closer than 500 feet. No disposal or storage practices for waste shall take place in the buffer zones.

(4) Design Criteria.

- (a) New CCR landfills and lateral expansions of CCR landfills shall be designed in accordance with 40 CFR 257.70.
- (b) Existing and new CCR surface impoundments and lateral expansions of CCR surface impoundments shall be designed in accordance with 40 CFR 257.71, 40 CFR 257.72, 40 CFR 257.73, and 40 CFR 257.74.

(5) Operating Criteria.

- (a) CCR landfills shall be operated in accordance with the criteria in 40 CFR 257.80, 40 CFR 257.81, and 40 CFR 257.84.
- (b) CCR surface impoundments shall be operated in accordance with the criteria in 40 CFR 257.80, 40 CFR 257.82, and 40 CFR 257.83.
- (c) The operation and use of the CCR unit shall be as stipulated in the solid waste handling permit.

(6) Groundwater Monitoring and Corrective Action.

- (a) CCR units are subject to the groundwater monitoring and corrective action requirements in 40 CFR 257.90, 40 CFR 257.91, 40 CFR 257.93, 40 CFR 257.94, 40 CFR 257.95, 40 CFR 257.96, 40 CFR 257.97, and 40 CFR 257.98.
- (b) When referenced in this Rule, Appendix III and Appendix IV constituents shall refer to those constituents as listed in Appendix III and IV of 40 CFR Part 257, Subpart D, 80 FR 21468, (Apr. 17, 2015), which are hereby incorporated by reference.
- (c) The owner or operator of a CCR unit must submit a semi-annual report to the Division to coincide with the semi-annual sampling event. A qualified groundwater scientist must certify the report.

- (d) The Division must provide concurrence with the following actions in order for them to be complete:
1. Groundwater monitoring system design
 2. Groundwater sampling and analysis plan
 3. Groundwater monitoring well installation
 4. Alternate source demonstration
 5. Selection of remedy
 6. Completion of remedy
- (e) Analysis of Appendix III detection monitoring constituents shall be required for all CCR units. Analysis of Appendix IV assessment monitoring constituents shall be required for CCR units in accordance with 40 CFR 257.95.
- (f) An owner or operator of a CCR unit shall continue to monitor for Appendix I or II constituents if these constituents have previously been detected at statistically significant levels above background concentrations.
- (g) Monitoring wells require replacement after two dry sampling events, unless an alternate schedule has been approved by the Division. A minor modification shall be submitted in accordance with 391-3-4-.02(4)(b)7 prior to the installation or decommissioning of monitoring wells. Well installation must be directed by a qualified groundwater scientist.

(7) Closure and Post-Closure Care.

- (a) Inactive surface impoundments are subject to the requirements in 40 CFR 257.100.
1. The following additional requirements apply to inactive surface impoundments that complete closure requirements in 40 CFR 257.100(b)(1) through (b)(4) no later than April 17, 2018:
 - (i) Permitting requirements in 391-3-4-.10(9)
 - (ii) Groundwater monitoring and corrective action requirements in 391-3-4-.10(6)
 2. CCR surface impoundments that complete closure through removal of CCR and meet all of the requirements of 40 CFR 257.100 (b)(5) no later than April 17, 2018 are subject only to the requirements in 391-3-4-.10(9)(c)6(v)(I).
- (b) Closure or retrofit of existing, new, and lateral expansions of CCR units shall be conducted in accordance with 40 CFR 257.101, 40 CFR 257.102, and 40 CFR 257.103.
- (c) The owner or operator must close the CCR unit in accordance with the written closure plan.
- (d) A notice of intent to close must be provided to the Director after receipt of the final load of waste.

- (e) Upon completion of closure activities, a professional engineer registered in Georgia shall prepare and submit a closure report to the Director. The closure report must be completed on forms provided by the Division. If the Director concurs with the closure report, closure will be deemed complete and the facility may begin the post-closure care period.
- (f) Concurrent with the submission of this closure report to the Director, the owner or operator must submit to the Director confirmation that a notation on the deed to the property has been recorded and must in perpetuity notify any potential purchaser of the property that the land has been used as a CCR unit and that its use is restricted under the post closure care requirements of this Rule.
- (g) Post-Closure care for existing, new, and lateral expansions of CCR units shall be conducted in accordance with 40 CFR 257.104 with the following exception and additions:
 - 1. An owner or operator of an inactive surface impoundment that elects to close a CCR unit pursuant to the requirements under 40 CFR 257.100(b) is subject to the post-closure care criteria in 40 CFR 257.104.
 - 2. CCR units must comply with the conditions of the solid waste handling permit.
 - 3. The release of CCR units from post-closure care must be approved by the Division.

(8) Recordkeeping, Notification, and Posting of Information to the Internet.

- (a) The requirements of 40 CFR 257.105, 40 CFR 257.106, and 40 CFR 257.107 are incorporated by reference with the following addition:
 - 1. Electronic mail sent to a designated EPD recipient is an authorized form of notification.

(9) Permits.

- (a) CCR Permit Applications: After the effective date of this Rule, owners and operators of all CCR units are required to submit to the director a permit application that meets the requirements of this Rule.
 - 1. Owners and operators of new CCR units are required to submit to the director a complete permit application prior to the initial receipt of CCR.
 - 2. Owners and operators of existing CCR units and inactive CCR units shall submit a complete permit application no later than two years from the effective date of the Rule.
- (b) All CCR unit permit applications must include the following:
 - 1. A completed form designated by the Division.
 - 2. Written verification that the site conforms to all local zoning or land use ordinances.
 - 3. Property boundary survey and legal description.
 - 4. Financial assurance mechanism meeting the criteria in 391-3-4-.13.

5. A qualified professional engineer's certification that all application requirements have been met.

(c) Additional permit application requirements for CCR Units by Facility Type:

1. New CCR landfills or lateral expansion of CCR landfills

- (i) Technical data and report to comply with location restrictions in 40 CFR 257.60, 40 CFR 257.61, 40 CFR 257.62, 40 CFR 257.63, and 40 CFR 257.64.
- (ii) Siting report that meets the criteria specified in "Criteria for Performing Site Acceptability Studies for Solid Waste Landfills in Georgia", Circular 14, Appendix A. The report shall be prepared by a qualified groundwater scientist.
- (iii) Plan and profile sheet of disposal area. The plan and profile sheet shall include topographical maps at contour intervals of not more than five feet for the existing ground surface elevation, initial disposal area elevation, final disposal area elevation, and buffers.
- (iv) Design of a liner and leachate collection system as required by 40 CFR 257.70.
- (v) Quality assurance/quality control (QA/QC) plan for the construction of the liner system, leachate collection system, and the final cover system.
- (vi) An operation plan that includes at a minimum:
 - (I) A fugitive dust plan in compliance with 40 CFR 257.80.
 - (II) A run-on and run-off control plan in compliance with 40 CFR 257.81.
 - (III) Inspection requirements in compliance with 40 CFR 257.84.
 - (IV) Identification of any uniquely associated wastes as listed in 40 CFR 261.4(b)(4), the quantities generated by the facility, and a description of how these wastes will be managed.
 - (V) Procedures for compliance with recordkeeping, notification, and posting of information to the internet as required by 40 CFR 257.105, 40 CFR 257.106, and 40 CFR 257.107.
 - (VI) Procedures for updating all plans and assessments periodically as required by 40 CFR Part 257.
- (vii) A groundwater monitoring plan in accordance with 391-3-4-.10(6).
- (viii) A closure and post-closure plan in accordance with 391-3-4.10(7).
- (ix) Any additional information that may be required by the Division.

2. New Surface Impoundments or lateral expansions of surface impoundments

- (i) Technical data and report to comply with location restrictions in 40 CFR 257.60, 40 CFR 257.61, 40 CFR 257.62, 40 CFR 257.63, and 40 CFR 257.64.
- (ii) Siting report that meets the criteria specified in "Criteria for Performing Site Acceptability Studies for Solid Waste Landfills in Georgia", Circular 14, Appendix A. The report shall be prepared by a qualified groundwater scientist.
- (iii) Technical report for the hazardous potential classifications as outlined in 40 CFR 257.74 and the emergency action plan if required by 40 CFR 257.74.
- (iv) For a new CCR surface impoundment that has a height of five feet or more and a storage volume of 20 acre-feet or more, or a surface impoundment with a height of 20 feet or more, the application shall include the following:
 - (I) Design and construction plan requirements in 40 CFR 257.74.
 - (II) Structural stability assessment as required by 40 CFR 257.74.
 - (III) Safety factor assessment as required by 40 CFR 257.74.
- (v) Design of a liner system as required by 40 CFR 257.72.
- (vi) Quality assurance/quality control (QA/QC) plan for the construction of the liner system, leachate collection system, and the final cover system.
- (vii) An operation plan that includes at a minimum:
 - (I) A fugitive dust plan in compliance with 40 CFR 257.80.
 - (II) An inflow design flood control system in compliance with 40 CFR 257.82.
 - (III) Inspection requirements in compliance with 40 CFR 257.83.
 - (IV) Identification of any uniquely associated wastes as listed in 40 CFR 261.4(b)(4), the quantities generated by the facility, and a description of how these wastes will be managed.
 - (V) Procedures for compliance with recordkeeping, notification, and posting of information to the internet as required by 40 CFR 257.105, 40 CFR 257.106, and 40 CFR 257.107.
 - (VI) Procedures for updating all plans and assessments periodically as required by 40 CFR Part 257.
- (viii) A groundwater monitoring plan in accordance with 391-3-4-.10(6).
- (ix) A closure and post-closure plan in accordance with 391-3-4-.10(7).
- (x) Any additional information that may be required by the Division.

3. Existing CCR landfills

- (i) Location restriction demonstration requirements in 40 CFR 257.64.
 - (ii) Description of how the CCR landfill's operating criteria requirements in 40 CFR 257.80, 40 CFR 257.81, and 40 CFR 257.84 are met.
 - (iii) Groundwater monitoring plan in accordance with 391-3-4-.10(6). Explanation of how groundwater monitoring and corrective action criteria requirements in 40 CFR 257.90, 40 CFR 257.91, 40 CFR 257.93, 40 CFR 257.94, 40 CFR 257.95, 40 CFR 257.96, 40 CFR 257.97, and 40 CFR 257.98 are met.
 - (iv) Explanation of how closure and post-closure care requirements in 40 CFR 257.101, 40 CFR.102, 40 CFR 257.103, and 40 CFR 257.104 will be met.
 - (v) Website address for information required to be posted by 40 CFR 257.105, 40 CFR 257.106, and 40 CFR 257.107.
4. Inactive CCR landfills must meet requirements 3(i) – (iv) for an existing CCR landfill.
5. Existing Surface Impoundments
- (i) Location restriction demonstrations required by 40 CFR 257.60, 40 CFR 257.61, 40 CFR 257.62, 40 CFR 257. 63, and 40 CFR 257.64.
 - (ii) Description of the CCR surface impoundment's design criteria required by 40 CFR 257.71 and 40 CFR 257.73.
 - (iii) Description of how the CCR surface impoundment's operating criteria required by 40 CFR 257.80, 40 CFR 257.82, and 40 CFR 257.83 are met.
 - (iv) Groundwater monitoring plan in accordance with 391-3-4-.10(6). Explanation of how groundwater monitoring and corrective action criteria required by 40 CFR 257.90, 40 CFR 257.91, 40 CFR 257.93, 40 CFR 257.94, 40 CFR 257.95, 40 CFR 257.96, 40 CFR 257.97, and 40 CFR 257.98 are met.
 - (v) Explanation of how closure and post-closure care requirements found in 40 CFR 257.101, 40 CFR.102, 40 CFR 257.103, and 40 CFR 257.104 will be met.
 - (vi) Website address for information required to be posted by 40 CFR 257.105, 40 CFR 257.106, and 40 CFR 257.107.
6. Inactive Surface Impoundments. An owner or operator of an inactive surface impoundment shall complete closure of the CCR unit as specified in 40 CFR 257.100 no later than April 17, 2018 or submit a permit application for an existing CCR surface impoundment.
- (i) Technical data and report showing compliance with 40 CFR 257.100.
 - (ii) Technical report of geological and hydrogeological units within the disposal site.
 - (iii) Potentiometric surface map of the water table.
 - (iv) Siting report which includes identification of wetlands, floodplains, and seismic impact zones.

- (v) Written closure plan that includes at a minimum:
 - (I) Narrative describing how the CCR unit will be closed including the elimination of free liquids and stabilization of remaining waste or by closure through removal of CCR.
 - (II) Identification of any pipes, utilities, or other penetrations through or beneath the impoundment. The inspection frequency and method of evaluation should be provided.
 - (III) Final cover analysis.
- (vi) Stability analysis that, at a minimum, includes the following:
 - (I) On-site or local soil conditions that may result in significant differential settling.
 - (II) On-site or local geologic or geomorphologic features.
 - (III) On-site or local human-made features or events, both surface and subsurface.
- (vii) Groundwater monitoring plan in accordance with 391-3-4-.10(6).
- (viii) Closure through removal of CCR is subject only to (v)(I) above and is not subject to the financial assurance requirements of 391-3-4-.13.

7. NPDES – CCR Surface Impoundments

- (i) Technical report of geological and hydrogeological units within the disposal site.
- (ii) Potentiometric surface map of the water table.
- (iii) Siting report which includes identification of wetlands, floodplains, and seismic impact zones.
- (iv) Closure plan that includes at a minimum:
 - (I) Narrative describing how the CCR unit will be closed including the elimination of free liquids and stabilization of remaining waste or by closure through removal of CCR.
 - (II) Identification of any pipes, utilities, or other penetrations through or beneath the impoundment. The inspection frequency and method of evaluation should be provided.
 - (III) Final cover analysis.
- (v) Stability analysis that at a minimum includes the following:

- (I) On-site or local soil conditions that may result in significant differential settling.
- (II) On-site or local geologic or geomorphologic features.
- (III) On-site or local human-made features or events, both surface and subsurface.
- (vi) Groundwater monitoring plan in accordance with 391-3-4-.10(6).
- (vii) Closure through removal of CCR is subject only to (iv)(I) above and is not subject to the financial assurance requirements of 391-3-4-.13.

8. Dewatered Surface Impoundments

- (i) Demonstration that closure procedures have minimized the threat to human health and the environment.
- (ii) Stability analysis.
- (iii) Final cover analysis.
- (iv) Groundwater monitoring plan in accordance with 391-3-4-.10(6).

(10) Financial Assurance.

- (a) All CCR units must meet requirements in 391-3-4-.13.

(11) Variances.

- (a) A compliance schedule variance for CCR units not meeting the minimum criteria may be considered upon the following:
 - 1. A demonstration that no alternative units meeting the minimum requirement either on-site or off-site can be used to dispose of the CCR or non-CCR wastewater;
 - 2. A demonstration that the owner or operator is unable to use other public or private alternatives to manage the waste in the non-compliant unit; and
 - 3. The schedule of compliance must specify remedial measures and an enforceable sequence of actions or operations leading to compliance within a reasonable time, not to exceed five years from the date of publication of the federal criteria.
- (b) Other variances which may be granted under section 391-3-4-10 may not allow a requirement which is less stringent than those found in 40 CFR 257.60 through 257.107 effective on October 19, 2015.

391-3-4-.01 Definitions.

“Coal Combustion Residuals (CCR)” means fly ash, bottom ash, boiler slag, and flue gas desulfurization materials generated from burning coal for the purpose of generating electricity by electric utilities and independent power producers.

“Contaminant” means any constituent in Appendix I, II, III, or IV found at levels confirmed above a groundwater protection standard.

“CCR Landfill” means an area of land or an excavation owned or operated by an electric utility or independent power producer that receives CCR and which is not a surface impoundment, an underground injection well, a salt dome formation, a salt bed formation, an underground or surface coal mine, or a cave. For purposes of this Chapter, a CCR landfill also includes sand and gravel pits and quarries that receive CCR, CCR piles, and any practice that does not meet the definition of a beneficial use of CCR.

“CCR Surface Impoundment” means a natural topographic depression, man-made excavation, or diked area owned or operated by an electric utility or independent power producer, which is designed to hold an accumulation of CCR and liquids, and the unit treats, stores, or disposes of CCR.

“CCR Unit” means any CCR landfill, CCR surface impoundment, or the lateral expansion of such landfill or impoundment, or a combination of more than one of these units, based on the context of the paragraph(s) in which it is used. This term includes both new and existing units, unless otherwise specified.

“Qualified Groundwater Scientist” means a professional engineer or geologist registered to practice in Georgia who has received a baccalaureate or post-graduate degree in the natural sciences or engineering and has sufficient training and experience in groundwater hydrology and related fields that enable that individual to make sound professional judgements regarding groundwater monitoring, contaminant fate and transport, and corrective action.

“Release” means the discharge, deposit, injection, dumping, spilling, emitting, releasing, leaking, or placing of any substance into or on any land or water of the state.

“Site” means the entire property a permitted solid waste handling facility is located within and includes all activities within that property.

391-3-4-.02 Solid Waste Handling Permits.

(4)(a) Major modifications shall include, but are not limited to, the following:

6. A modification which involves a lateral expansion of a CCR surface impoundment.

(b) Minor modifications shall include, but are not limited to, the following:

20. A modification which involves the addition of or change in a ~~clay~~soil or synthetic liner and leachate collection system to a landfill-waste unit holding a valid solid waste handling permit, if it does not require other significant site redesign.

21. A modification which involves the removal or recovery of CCR from a CCR unit for the purpose of beneficial use.

(4)(c)6 Except for Private Industry Solid Waste Disposal Facilities, Submission of written verification that a public hearing was held by the governing authority of the county or municipality in which the solid waste facility requesting the modification is located, not less than

two weeks prior to granting approval of the modification. Submission of written verification that notice of such hearing was posted at the site of such facility and advertised in a newspaper of general circulation serving the county or counties in which the facility is located at least thirty (30) days prior to such hearing. A typed transcript of the hearing must be provided to the Division.

(8)(e) For a permit application a site assessment as required by Rule 391-3-4-.05, except CCR units which must meet criteria in 391-3-4-.10.

(11) Changes to Permit Status. The Director may approve a request to modify an existing solid waste handling permit to reflect the change of a facility's operational status. Such changes can include, but are not limited to, operating, closure, and post-closure.

391-3-4-.03 Public Participation.

(4) The governing authority of the county or municipality ~~with~~will hold a public hearing not less than two weeks prior to the issuance of any permit except for a private industry disposal facility and notice of such hearing shall be posted at the proposed site and advertised in a newspaper of general circulation serving the county or counties in which the proposed activity will be conducted, at least thirty (30) days prior to such hearing. A typed copy of the hearing transcript shall be submitted to the Division.

391-3-4-.05 Criteria for Siting.

(6) CCR units must meet the siting criteria in 391-3-4-.10.

391-3-4-.07 Landfill Design and Operations.

(4)(a) Industrial Waste Disposal Facilities: industrial waste disposal facilities permitted to receive only a single type of industrial waste (monofil) or receive only a single industry's waste may be given a variance by the Director from installing liners and leachate collection systems, applying daily cover, installing ground water and surface water monitoring systems and monitoring for methane gas if the applicant can demonstrate to the satisfaction of the Director that the waste to be disposed of would not cause odors or be attractive to disease vectors or birds or generate methane gas. Unless a variance is granted, the applicant must demonstrate compliance with all applicable provisions of this Rule. Disposal facilities accepting wastes from more than one industrial source, unless the facility is a monofil, must meet all standards applicable to municipal solid waste landfills in Chapter 391-3-4. CCR Units are exempt from the requirements of this Rule and must meet requirements in 391-3-4-.10.

(5) CCR Management Plan. Owners or operators of MSWLs and Commercial Industrial Landfills must incorporate a CCR management plan into the facility's Design and Operational Plan before the initial receipt of CCR. MSWLs and Commercial Industrial Landfills that accepted CCR before the effective date of the Rule and will continue to accept CCR after the effective date must incorporate a CCR management plan into the facility's Design and Operational Plan by minor modification within 180 days from the effective date of the Rule.

391-3-4-.11 Closure Criteria.

(8) Owners and operators of CCR units are exempt from this Rule and must meet the closure requirements in 391-3-4-.10.

391-3-4-.12 Post-Closure Care.

(7) Owners and operators of CCR units are exempt from this Rule and must meet the post-closure requirements in 391-3-4-.10.

391-3-4-.14 Groundwater Monitoring and Corrective Action.

(1) Applicability. All permits and modifications of permits for MSWLF units issued after the effective date of this Rule require the installation of a groundwater monitoring system. All existing MSWLF units not now having a groundwater monitoring system, and failing to make the demonstration required in section (2) shall incorporate a groundwater monitoring system into the site design and shall install the system within 270 days of being notified to do so by the Division, provided, however, that such systems must be installed not later than October 1, 1994. Such groundwater monitoring and, if needed, corrective action shall be conducted in accordance with this Rule. Industrial solid waste landfills and construction/demolition waste landfills must also meet the requirements of this Rule unless otherwise exempted by the Division. CCR units must meet requirements in 391-3-4-.10(6).

~~(5) Once established at a MSWLF unit, groundwater monitoring shall be conducted throughout the active life and post-closure care period of that MSWLF unit as specified in Rule 391-3-4-.12. When referenced in this Rule, Appendix III and Appendix IV constituents shall refer to those constituents as listed in Appendix III and IV of 40 CFR Part 257, Subpart D, 80 FR21468, (April 17, 2015), which are hereby incorporated by reference.~~

~~(6) A qualified groundwater scientist is a professional geologist or geotechnical engineer registered to practice in Georgia.~~ Once established at a MSWLF unit, groundwater monitoring shall be conducted throughout the active life and post-closure care period of that MSWLF unit as specified in Rule 391-3-4-.12.

(10) Monitoring wells must be cased in manner that maintains the integrity of the monitoring well borehole and prevents interaquifer migration of fluids. This casing must be screened or perforated and packed with gravel or sand, where necessary, to enable collection of groundwater samples. The annular space (i.e., the space between the borehole and well casing) above the sampling depth must be sealed to prevent contamination of samples and the groundwater.

(a) The owner or operator must notify the Director that the design, installation, development and decommission of any monitoring wells, piezometers and other measurement, sampling, and analytical devices documentation has been placed in the operating record; and

(b) The monitoring wells, piezometers, and other measurement, sampling, and analytical devices must be operated and maintained so that they perform to design specifications throughout the life of the monitoring program. Monitoring wells and piezometers shall be constructed by drillers having a valid and current bond with the Water Wells Standards Advisory Council. Monitoring wells require replacement after two dry sampling events, unless an alternate schedule has been approved by the Division.

(11) The number, spacing, and depths of monitoring systems shall be:

(a) Determined based upon site-specific technical information that must include thorough characterization of:

1. Aquifer thickness, groundwater flow rate, groundwater flow direction including seasonal and temporal fluctuations in groundwater flow; and

2. Saturated and unsaturated geologic units and fill materials overlying the uppermost aquifer, materials comprising the uppermost aquifer, and materials comprising the confining unit defining the lower boundary of the uppermost aquifer; including, but not limited to: thickness, stratigraphy, lithology, hydraulic conductivities, porosities and effective porosities.

~~(b) Certified by a professional geologist, a professional geotechnical engineer registered to practice in Georgia, or a qualified groundwater scientist.~~ Within 14 days of this certification, the owner or operator must notify the Director that the certification has been placed in the operating record.

(18) The owner or operator must specify in the operating record one of the following statistical methods to be used in evaluating groundwater monitoring data for each hazardous constituent. The statistical test chosen shall be conducted separately for each hazardous constituent in each well.

(a) A parametric analysis of variance (ANOVA) followed by multiple comparisons procedures to identify statistically significant evidence of contamination. The method must include estimation and testing of the contrasts between each compliance well's ~~median~~ mean and the background mean level for each constituent.

~~(e) Another statistical test method that meets the performance standards of paragraph (19) of this Rule. The owner or operator must place a justification for this alternative in the operating record and notify the Director of the use of this alternative test. The justification must demonstrate that the alternative method meets the performance standards of paragraph (19) of this Rule.~~ Another statistical method that meets the requirements of Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities Unified Guidance (EPA-530-R-09-007 March 2009).

(21) Detection Monitoring. Detection monitoring is required at MSWLF units at all groundwater monitoring wells defined in paragraphs (8)(a) and (b) of this Rule. At a minimum, a detection monitoring program must include the monitoring for the constituents listed in Appendix I of this Rule.

(a) The Director may delete any of the Appendix I monitoring parameters for a MSWLF unit if it can be shown that the removed constituents are not reasonably expected to be contained in or delivered from the waste contained in the unit.

(b) The Director may establish an alternative list of inorganic indicator parameters for a MSWLF unit, in lieu of some or all of the heavy metals (constituents 1-15 in Appendix I to this Rule), if the alternative parameters provide a reliable indication of inorganic releases from the MSWLF unit to the groundwater. In determining alternative parameters, the Director shall consider the following factors:

1. The types, quantities, and concentrations of constituents in wastes managed at the MSWLF unit;
2. The mobility, stability, and persistence of waste constituents or their reaction products in the unsaturated zone beneath the MSWLF unit;
3. The detectability of indicator parameters, waste constituents, and reaction products in the groundwater; and
4. The concentration or values and coefficients of variation of monitoring parameters or constituents in the groundwater background.

(c) After the effective date of the Rule, owners and operators of MSWLs and Commercial Industrial Landfills must add Appendix III to their detection monitoring parameters before the

initial receipt of CCR. MSWLs and Commercial Industrial Landfills that accepted CCR before the effective date of the Rule must incorporate the Appendix III constituents into their monitoring plan by minor modification within 180 days from the effective date of the Rule.

(d) The Director will not delete parameters or establish alternate parameter lists discussed under (21)(a) and (b) for those facilities accepting CCR wastes.

(e) The Director may require additional parameters based on waste descriptions.

(25) Within 90 days of triggering an assessment monitoring program, and annually thereafter, the owner or operator must sample and analyze the groundwater for all constituents identified in Appendix II of this Rule. A minimum of one sample from each downgradient well must be collected and analyzed during each sampling event. For any constituent detected in the downgradient wells as the result of the complete Appendix II analysis, a minimum of four independent samples from each well (background and downgradient) must be collected and analyzed to establish background for the new constituents. The Director may specify an appropriate subset of wells to be sampled and analyzed for Appendix II constituents during assessment monitoring. The Director may delete any of the Appendix II monitoring parameters for a MSWLF unit if it can be shown that the removed constituents are not reasonably expected to be in or derived from the waste contained in the unit. Owners and operators of MSWLs and Commercial Industrial Landfills that will accept CCR after the effective date of the Rule must include Appendix IV in the assessment monitoring parameters before the initial receipt of CCR. MSWLs and Commercial Industrial Landfills that accepted CCR before the effective date of the Rule and with known releases must incorporate Appendix IV constituents into their monitoring plans by minor modification within 180 days from the effective date of the Rule.

391-3-4-.17 Measuring and Reporting Requirements.

(5) For operating CCR units, the total volume of the CCR waste disposed in a CCR unit and the CCR removed, recovered, or diverted for beneficial use shall be reported to the Division on July 1 of each year. The required data shall be submitted on such forms as may be prescribed by the Director.

(6) The owner or operator of a municipal solid waste landfill shall notify the local governing authorities of any city and county in which such landfill is located of any release from the site of such landfill of a contaminant which is likely to pose a danger to human health. In addition, such owner or operator shall cause notice of such release to be published in the legal organ of the county in which such landfill is located. Compliance with the requirements of this Rule shall occur within 14 days of confirmation of such release by the Division.